WASHINGTON STATE DEPARTMENT OF ECOLOGY
P.O. BOX 47600
OLYMPIA, WASHINGTON 98504-7600

IN THE MATTER OF:	**]**	**PSD-03-04**
DARRINGTON ENERGY, LLC	**]**	
COGENERATION POWER PLANT	**]**	**FINAL**
DARRINGTON ENERGY, LLC	**]**	**PREVENTION OF SIGNIFICANT**
SR 530	**]**	**DETERIORATION APPROVAL**
DARRINGTON, WA 98033	**]**	

Pursuant to the federal Prevention of Significant Deterioration (PSD) regulations, 40 Code of Federal Regulations (CFR) 52.21, and the Washington State Department of Ecology (Ecology) general regulations for air pollution sources Chapter 173-400 Washington Administrative Code (WAC) Ecology now finds the following:

FINDINGS

1. Darrington Energy, LLC (DE) has applied to construct and operate a wood fired cogeneration facility in Darrington, Washington.
2. A PSD application was submitted on November 20, 2003. Supplemental information was received on January 9, January 27, March 18, April 14, April 30, and June 18, 2004. On January 28, 2004 the Application was found to be sufficiently complete to begin developing permit conditions.
3. The Darrington Cogeneration Facility (DCF) is proposed to be located approximately one mile north of Downtown Darrington, in Snohomish County, between State Route 530 and the Sauk River and 83 kilometers (km) south of the U.S. – Canadian border. Its Universal Transverse Mercator (UTM) grid coordinates are Easting 604150, Northing 5347050, Zone 10.
4. DCF will be located in a Class II Area that is designated as "attainment or unclassified" for the purpose of PSD permitting for all pollutants. The distances to nearest Class I areas are shown in the following Table:

Class I Area	Distance to DCF	
	(km)	(miles)
Glacier Peak, WA	17.0	10.6
North Cascades NP	38.4	23.9
Mt. Baker, WA	47.3	29.4
Alpine Lakes, WA	64.6	40.2
Pasayten, WA	69.2	43.0
Olympic NP	124.1	77.1
Mt. Rainier NP	141.6	88.0
Goat Rocks, WA	178.2	110.8

5. The proposed project consists of installing:
   - One wood waste fired boiler with a maximum capacity of about 403 Million British thermal units per hour (MMBtu/hr) heat input, and associated material handling equipment.
   - One nominal 20.6 megawatt (MW) steam turbine.
   - One nominal 1,000 kilowatt (KW) diesel fired standby generator.
   - One cooling tower.

6. Because DCF is a new source that has the potential to emit carbon monoxide (CO) at greater than 250 tons per year (tpy), DCF qualifies as a major source and is subject to PSD review. Since emissions for nitrogen oxides (NO_X), CO, and particulate matter/particulate matter less than 10 microns in diameter (PM/PM_{10}), are in excess of each respective PSD significant emission rate (SER), these emissions are subject to PSD review.

7. DCF's potential to emit pollutants that could be subject to PSD review are shown below. Pollutants emitted at greater than the respective PSD SER are subject to regulation under PSD.

DCF Project Emissions:

Pollutant	Project Potential to Emit Tons Per Year, (TPY)	PSD SER Tons Per Year, (TPY)	PSD Applicable
Nitrogen Oxides (NO_X)	163	40	**Yes**
Carbon Monoxide (CO)	560	100	**Yes**
Sulfur Dioxide (SO_2)	28.8	40	No
Particulate Matter (PM) and Particulate Matter less than ten microns (PM_{10}) [a]	35.2	15	**Yes**
Volatile Organic Carbon, VOC (as CH_4)	33.5	40	No
Ammonia	45.0	NA	N/A [b]

a. All Particulate Matter (PM) is assumed to have less than 10 microns diameter (PM_{10}) for this permit. The SERs for PM and PM_{10} are 25 TPY and 15 TPY respectively.

b. Ammonia may be regulated under PSD because its emission is due to the control of NO_X emissions, or it may be regulated in the Notice of Construction issued by Puget Sound Clean Air Agency. For this project, ammonia will be regulated by Puget Sound Clean Air Aagency

8. Emissions of all other pollutants are subject to Notice of Construction (NOC) permitting requirements and will be addressed by the Puget Sound Clean Air Agency (PSCAA).

9. Best Available Control Technology (BACT) determinations:

Unit	Pollutant	Control Technology	BACT
Wood Fired Boiler	NO_X	Selective non-catalytic reduction (SNCR)	A short-term (24 hour average) limit of 0.12 pounds NO_X per million British thermal units (lb NO_X/MMBtu).
	CO	Good combustion practice	An emission limit of 0.35 lb CO/MMBtu on a 24-hour average basis.
	PM/PM_{10}	Dry electrostatic precipitator (ESP)	An emission limit of 0.02 lb PM_{10}/MMBtu on a 24-hour average basis.
Emergency Generator	NO_X	Meet new engine standards and limit hours of operation	Operate less than 300 hours per year for maintenance, training, and emergency power
Cooling Tower	PM/PM_{10}	Drift eliminator	Drift rate design of less than 0.001% of the tower re-circulating water flow rate

10. DCF has elected to take a federally enforceable limit on the number of tons of NO_X, CO, and PM/PM_{10} emitted each year from the wood-waste-fired boiler.

11. DCF has elected to take a federally enforceable limit on the number of hours per year the emergency generator will operate.

12. This project is subject to New Source Performance Standard (NSPS) 40 CFR 60, Subpart Db (Standards of Performance for Industrial Commercial Institutional Steam Generating Units).

13. Maximum impacts of the proposed emissions from this project do not exceed allowable increments in the closest Class I Area, Glacier Peak Wilderness, or in nearby Class II areas as shown in the following table:

Class I and Class II Increment Summary

Pollutant	Averaging Time	Maximum Ambient Class I Area Impact		Class I Area Allowable Increment ($\mu g/m^3$)	Maximum Ambient Class II Area Impact ($\mu g/m^3$)	Class II Area Allowable Increment ($\mu g/m^3$)
		Class I Area With Maximum Impact	$\mu g/m^3$			
NO_2	Annual	Glacier Peak Wilderness	0.082	2.5	2.1	25
PM_{10}	24-Hour	Glacier Peak Wilderness	0.11	8	9.1	30
	Annual	Glacier Peak Wilderness	0.016	4	2.2	17

14. Proposed emissions will not exceed any National Ambient Air Quality Standards as shown in the following Table:

NAAQS Analysis Summary

Pollutant	Averaging Time	Maximum DCF Concentration	Modeled Cumulative[a] Concentration	Background Concentration	Total Concentration	NAAQS
NO_2	Annual	2.1	14	61	75	100
PM_{10}	24 hour	9.3	48	21	69	150
	Annual	2.2	9.1	4	13	50
CO	1 hour	480	NA	NA	NA	35,000
	8 hour	225	NA	NA	NA	10,000

Note: All concentrations are in micrograms per cubic meter ($\mu g/m^3$)
a. Cumulative impacts analysis was required for NO_2 and PM_{10}, but not for CO

15. DCF is not expected to contribute significantly to visibility impairment, deposition loadings, or cause harm to any air quality related value at any Class I area.

16. The project will not have a noticeable effect on industrial, commercial, or residential growth in the Darrington area.

17. Appeals against this final permit may be made to the USEPA Administrator pursuant to 40 CFR Part 124.

18. Based upon the Technical Support Document prepared on July 15, 2004 and the application, Ecology finds that all requirements for PSD have been satisfied and will comply with all applicable federal NSPS. Approval of the PSD application is granted subject to the following conditions:

APPROVAL CONDITIONS:

Production Limits

1. The emergency generator shall not exceed 300 hours of operation in any 12 consecutive months.

Fuel Usage

2. The wood-waste-fired boiler shall burn waste wood from lumber manufacturing, whole trees, or similar natural vegetation only. Treated wood, railroad ties, and sludges such as Kraft mill pulp residue are not allowed. Oil with a sulfur content of 0.05% or less may be used for igniting wood-waste or to maintain good combustion.
3. The emergency generator shall be fueled by oil with a sulfur content of 0.05% or less.

Emission Limits

Wood-Waste-Fired Boiler

4. NO_X emissions from the wood-waste-fired boiler shall not exceed:
   4.1. 0.12 pounds per million Btu (lb/MMBtu) averaged over 24 hours.
   4.2. 48.3 pounds per hour (lb/hr) averaged over 24 hours.
   4.3. 159.3 tons per year averaged over 12 consecutive months.
5. CO emissions from the wood-waste-fired boiler shall not exceed:
   5.1. 1,200 parts per million dry volume (ppmdv) at 7% oxygen (O_2) averaged over 1-hour.
   5.2. 141 lb/hr averaged over 24 hours.
   5.3. 551 tons per year averaged over 12 consecutive months.
6. PM/PM_{10} emissions from the wood-waste-fired boiler shall not exceed:
   6.1. 0.02 lb/MMBtu averaged over 24 hours.
   6.2. 8.1 lb/hr averaged over 24 consecutive hours.
   6.3. 32 tons per year averaged over 12 consecutive months.

Emergency Generator

7. NO_X emissions from the emergency generator:
   7.1. Shall not exceed 3.6 tons per year averaged over 12 consecutive months.
   7.2. Must meet the federal new engine standards contained in 40 CFR 89 for 2004 or later.

Cooling Tower

8. PM/PM_{10} emissions from the cooling tower shall not exceed 7.5 tons per year averaged over 12 consecutive months.
9. The drift loss from the drift eliminator shall not exceed 0.001%.

Special Conditions

10. Before commencing actual construction DCF shall have a written agreement to sell steam to Hampton lumber. This agreement must ensure that Hampton Lumber will not operate oil or wood fired steam boilers while DCF is generating steam, except to the extent that standby operation is required so the boilers are readily available in the event DCF is suddenly unable to supply steam.
11. After beginning commercial operation, DCF shall:
    11.1. Participate in a cooperative effort with the Puget Sound Clean Air Agency to establish a particulate matter monitoring station in Darrington by providing $10,000 for the first year of in town air quality monitoring and $5,000 per year for each of the following four years.
    11.2. Provide $25,000 in seed money to the Puget Sound Clean Air Agency to support a woodstove buyback program and a program to curtail outdoor burning of vegetation.

11.3. Provide $50,000 ($10,000 per year for five years) in funding for additional scientific studies in the Glacier Peak Wilderness Area, to improve the understanding of existing deposition processes and the ecological implications of increased nitrogen deposition. The NW Airquest will develop and supervise these studies.

Compliance Determination Methods

Compliance with the Approval Condition in Column 1 shall be determined by the compliance method in Column 2, or an alternative method approved in advance by Ecology.

	Compliance with Condition #	Shall be determined by :
12.	1	Measuring the monthly operating hours of the emergency generator using a non resettable totalizing hour meter and summing the total operating hours over the previous 12 months.
13.	2	Maintaining records of the sulfur content of fuel purchased for the wood waste boiler.
14.	3	Maintaining records of the sulfur content of fuel purchased for the emergency generator.
15.	4.1, 4.2	NOx continuous emission monitoring system (CEMS) hourly data averaged over a 24 hour period. The CEMS shall meet the requirements contained in 40 CFR 60.48b(b) through 40 CFR 60.48b(f).
16.	4.3	Summary of previous 12 months of emissions reported for Condition 4.2 on a monthly basis, in tons per year.
17.	5.1, 5.2	CO CEMS hourly data averaged over a 24 hour period. The CEMS shall meet Performance Specification 4 of 40 CFR 60, Appendix B and quality control/quality assurance requirements of 40 CFR 60 Appendix F.
18.	5.3	Summary of previous 12 months of emissions reported for Condition 5.2 on a monthly basis in tons per year.
19.	6.1, 6.2	Source testing in accordance with 40 CFR 60 Appendix A Method 5, 40 CFR 51 Appendix M Method 201, or 201A for the front half analysis and 40 CFR 51 Appendix M Method 202 for the back half.
20.	6.3	Calculation of previous 12 months of emissions reported for Condition 6.2 on a monthly basis in tons per year.
21.	7.1	Calculation of NO_X emissions using hours of operation and an emission factor approved by Ecology. Until a factor is approved the emission factor assumed for modeling is acceptable.
22.	7.2	Submittal of the manufacture's certification.
23.	8	A calculation methodology proposed to and approved by Ecology. The methodology may involve factors such as cooling tower recirculation rate, cooling tower total dissolved solids (TDS), fan operation effects, and manufacturer's information on drift losses.
24.	9	Certification by the vendor that the drift eliminator was installed in accordance with manufacturer's specifications.
25.	10	Submitting a copy of the agreement with Hampton Lumber to the PSCAA and Ecology.
26.	11.1, 11.2	Depositing the specified amounts of money within the time frames specified with PSCAA.
27.	11.3	Depositing the specified amounts of money within the time frames specified into a dedicated account for this function.

Initial Compliance

28. DCF shall submit an initial performance test plan to Ecology and the PSCAA at least 30 days prior to performance testing.

29. Within 60 days of achieving maximum firing rate but no later than 180 days from startup, the wood-waste-fired boiler shall be performance tested in accordance with 40 CFR 60.8 and Approval Conditions 15, 17, and 19.

Compliance Monitoring Methods

30. Compliance with Approval Condition 1 shall be monitored as in Condition 12.
31. Compliance with Approval Condition 2 and 3 shall be monitored as in Conditions 13 and 14 respectively.
32. Compliance with Approval Condition 4 shall be monitored as in conditions 15 and 16.
33. Compliance with Approval Condition 5 shall be monitored as in conditions 17 and 18.
34. Compliance with Approval Condition 6 shall be monitored by source testing in accordance with Approval Condition 19 no less than once per calendar year, with not less than 6 or more than 18 months between any two annual tests.
35. Compliance with Approval Condition 7.1 shall be monitored as in Condition 21.
36. Compliance with Approval Condition 8 shall be monitored as in Condition 23.

Startup and Shutdown

37. During startup or shutdown of the wood-waste-fired boiler, emissions of CO shall not exceed 1,500 lb/hr averaged over 1 hour.
    - 37.1. For the first 18 months of operation, the limit in Condition 37 is changed to 6,000 lb/hr averaged over 1 hour.
    - 37.2. During the first 12 months of operation, DCF will evaluate actual startup CO emissions and propose appropriate startup limits and procedures for Condition 37 by the end of operating month 13 for approval by Ecology.
38. Startup commences from a shutdown condition when an ignition flame is first applied to the waste-wood mass in the boiler, and ends when stable burning is established under good combustion practices.
39. Shutdown commences upon cessation of feed to the boiler, and ends when there is no longer ignited fuel in the boiler.
40. Neither startup nor shutdown shall exceed a 6 hour continuous period.

Other

41. DCF shall submit semi-annual reports to Ecology and PSCAA. Once the conditions from this permit have been included in DCF's Title V permit it will no longer be necessary to send the reports to Ecology. Reporting will then be determined by the Title V reporting format and schedule.
    - 41.1. The semi-annual reports should address Approval Conditions 1, 2, 3, 4, 5, 6, 7 and 8.
    - 41.2. All results of performance testing shall be submitted within thirty days of availability.
    - 41.3. All records pertaining to emissions shall be retained for a period of not less than 5 years.
    - 41.4. CEMS data shall be reported monthly to the Puget Sound Clean Air Agency in a format acceptable to that agency.
42. Each occurrence of NO_X or CO monitored emissions, or PM_{10} emissions measured in excess of the limits shall be reported in writing to Ecology and PSCAA in accordance with WAC 173-400-107(3). Such reports shall as a minimum include:
    - 42.1. The time of the occurrence.
    - 42.2. Magnitude of excess from the emission limit.
    - 42.3. The duration of the excess.
    - 42.4. The probable cause.
    - 42.5. Corrective actions taken or planned.
    - 42.6. Any agency contacted.

43. Sampling ports and platform shall be provided on each stack, after any final pollution control device. The ports shall meet the requirements of 40 CFR 60 Appendix A, Method 1. Adequate permanent and safe access to the test ports shall be provided.

44. DCF shall notify Ecology and PSCAA in writing at least thirty days prior to initial startup of the wood waste fired boiler allowed under this permit.

45. Within 90 days of startup, DCF shall identify operational parameters and practices that will constitute "proper operational practices" of the wood-waste-fired boiler relative to compliance with the conditions of this permit. These operational parameters and practices shall be included in an O&M manual for the facility. The O&M manual shall be maintained and followed by DCF and shall be available for review by Ecology, PSCAA, or EPA. Emissions that result from a failure to follow the requirements of the O&M manual relative to compliance with the conditions of this permit may be considered credible evidence that emission violations have occurred.

46. Access to the source by Ecology, PSCAA, or the EPA, shall be permitted upon request. Failure to allow such access is grounds for an enforcement action under the federal Clean Air Act or the Washington State Clean Air Act.

47. This approval shall become invalid if construction of the project is not commenced within eighteen (18) months after receipt of the final approval, or if construction of the facility is discontinued for a period of eighteen (18) months, unless Ecology extends the 18 month period, pursuant to 40 CFR 52.21(r)(2) and applicable EPA guidance.

48. The effective date of this permit shall not be earlier than the date upon which the US EPA notifies Ecology that the US EPA has satisfied its obligations, if any, under Section 7 of the Endangered Species Act 16 U.S.C. § 1531 et seq., 50 C.F.R. part 402, subpart B (Consultation Procedures) and Section 305(b)(2) of the Magnuson-Stevens Fishery and Conservation Act 16 U.S.C. § 1801 et seq., 50 C.F.R. part 600, subpart K (EFH Coordination, Consultation, and Recommendations).

49. For federal regulatory purposes and in accordance with 40 CFR 124.15 and 124.19: If there was a public comment requesting a change in the preliminary determination or a proposed permit condition during the public review and comment period, the effective date of this permit shall not be earlier than 30 days after service of notice to the commenters and applicant on the preliminary determination.

    49.1. If a review of the final determination is requested under 40 CFR 124.19 within the 30 day period following the date of the final determination, the effective date of the permit is suspended until such time as the review and any subsequent appeal against the permit are resolved.

    49.2. If there was no public comment requesting a change in the preliminary determination or a proposed permit condition during the public review and comment period, this permit is effective upon the date of finalization subject to consideration of Condition 48 (EPA's ESA requirement), above.

Reviewed by:

Robert C. Burmark

Robert C. Burmark, P.E.
Technical Services Section
Air Quality Program

February 9, 2005
Date

EXPIRES 1-4-06

Approved by:

Stuart A. Clark, Program Manager
Air Quality Program
Washington State Department of Ecology

2/11/05
Date

Ecology was notified by the US EPA that the US EPA has satisfied its obligations under the Endangered Species and Magnuson-Stevens Acts relative to PSD Permit 03-04 issued to Darrington Energy, LLC on:

January 18, 2005
Date of USEPA Notification

Stuart A. Clark, Program Manager
Air Quality Program
Washington State Department of Ecology

Appendix 1: Summary of Emission Limits

The Table below, is a listing of the emission limits contained in this permit. If there are any discrepancies between this table and the Approval Conditions above, the Approval Condition values should be used.

Emission Unit	Pollutant	Limit	Averaging Time	Test Method
Boiler	NO_X	0.12 lb/MMBtu	24-hr	40 CFR 60 Appendix A Method 7 and CEM
		48.3 lb/hr	24-hr	
		159.3 tpy	12 consecutive months	Calculation
	CO	1,200 ppm	1-hr	40 CFR 60 Appendix A Method 10 and CEM
		141 lb/hr	24-hr	
		551 tpy	12 consecutive months	Calculation
	PM/PM_{10}	0.02 lb/MMBtu	24-hr	40 CFR 60 Appendix A Method 5, 40 CFR 51 Appendix M Method 201 or 201A for the front half analysis and 40 CFR 51 Appendix M Method 202
		8.1 lb/hr	24-hr	
		32 tpy	12 consecutive months	Calculation
Emergency Generator	NO_X	3.6 tpy	12 consecutive months	Calculation
	hours	300	12 consecutive months	Hour meter
Cooling Tower	PM/PM_{10}	7.5 tpy	12 consecutive months	Calculation